

1.0 Overview of Air Quality Requirements in Arizona (Working Paper 1)

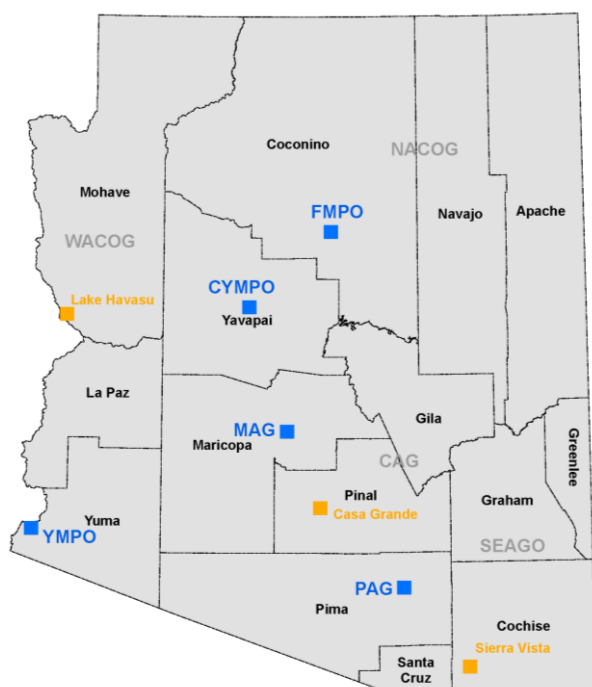
1.1 Introduction

The objective of Working Paper 1 (WP-1) is to provide an overview of the transportation-related air quality requirements in Arizona that will also act as the basis for the introduction / background section for the complete Arizona Department of Transportation (ADOT) Air Quality Management Guidebook (the Guidebook). WP-1 represents a summary of all nonattainment, maintenance and clean data areas in the state, including what each status means for transportation, and the associated requirements for developing State Implementation Plans (SIPs), and successfully demonstrating transportation conformity of transportation plans, programs and projects.

1.2 Arizona Geography

There are six councils of governments (COGs), five metropolitan planning organizations (MPOs), with populations greater than 50,000, and two Transportation Management Areas (TMAs), as illustrated in Figure 1-1, within the State of Arizona. The MPOs in the urban areas are also the regional agencies for transportation planning. In addition, MAG and PAG have been certified as TMAs (populations greater than 200,000) and, as a result, have greater requirements for congestion management, project selection and certification. In the rural areas of Arizona, the COGs perform planning services and direct service functions, such as operating the Area Agency on Aging, the Head Start programs and employment programs.

Figure 1-1: Arizona Metropolitan Planning Areas and Councils of Governments



Arizona Metropolitan Planning Organizations

- Central Yavapai Metropolitan Planning Organization (CYMPO)
- Flagstaff Metropolitan Planning Organization (FMPO)
- Maricopa Association of Governments (MAG)*
- Pima Association of Governments (PAG)*
- Yuma Metropolitan Planning Organization (YMPO)

* Transportation Management Areas (TMAs)

Arizona Councils of Governments

- Central Arizona Governments (CAG)
- Maricopa Association of Governments (MAG)
- Northern Arizona Council of Governments (NACOG)
- Pima Association of Governments (PAG)
- SouthEastern Arizona Governments Organization (SEAGO)
- Western Arizona Council of Governments (WACOG)

New Urban Areas / MPOs (2010 Census)

- Casa Grande / (Sun Corridor Metropolitan Planning Organization)
- Lake Havasu Metropolitan Planning Organization
- Sierra Vista Metropolitan Planning Organization

Source: Maricopa Association of Governments, http://www.azmag.gov/archive/AZ-COGs/Arizona_MPOs/pg_azMPOs.asp

1.3 National Ambient Air Quality Standards

The Clean Air Act Amendments of 1990 (CAAA) require the United States Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six “criteria” pollutants. EPA regulates these pollutants (carbon monoxide, lead, nitrogen dioxide, ozone, particle pollution, and sulfur dioxide) by developing human health-based (primary) and / or environmentally-based (secondary) criteria for allowable levels or concentrations of the pollutants in the ambient air. While EPA sets standards and regulates the emissions of all six pollutants, only four of the six, outlined in Table 1-1, are relevant with respect to transportation conformity as highlighted in blue. They are carbon monoxide, nitrogen dioxide, ozone and particulate matter. The EPA is charged with designating areas as attainment, maintenance or nonattainment of the NAAQS.

Table 1-1: National Ambient Air Quality Standards for Criteria Pollutants

Pollutant [Final Rule Citation]		Primary / Secondary	Averaging Time	Level (Concentration)	Form
Carbon Monoxide (CO) [76 FR 54294, Aug 31, 2011]		Primary	8-Hour	9 ppm	Not to be exceeded more than once per year
		Secondary	1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		Primary & Secondary	Rolling 3 month average	.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010]		Primary	1-Hour	9 ppm	98 th percentile, average over 3 years
		Primary & Secondary	Annual	53 ppm	Annual mean
Ozone [73 FR 16436, Mar 27, 2008]		Primary & Secondary	8-Hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration averaged over 3 years
Particle Pollution [78 FR 3086, Jan 15, 2013]	PM_{2.5}	Primary	Annual ¹	12 µg/m ³	Annual mean, averaged over 3 years
		Secondary	Annual	15 µg/m ³	Annual mean, averaged over 3 years
		Primary & Secondary	24-Hour	35 µg/m ³	98 th percentile, averaged over 3 years
	PM₁₀	Primary & Secondary	24-Hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010]		Primary	1-Hour	75 ppm	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-Hour	0.5 ppm	Not to be exceeded more than once per year

Source: Environmental Protection Agency, <http://www.epa.gov/air/criteria.html>.

1. Effective on March 18, 2013.

Recent NAAQS Developments

The EPA is required to scientifically review each NAAQS on five-year intervals (42 USC § 7409) and, as a result, the NAAQS and their implementation represent an ever-changing process. Some recent developments are detailed below.

On May 21, 2012 the EPA published two final rules via the Federal Register announcing the designations for the 2008 ozone NAAQS (77 FR 30088) and implementation of the 2008 NAAQS for ozone (77 FR 30160). The rules both became effective on July 20, 2012. The implementation rule established the air quality thresholds that define the classifications assigned to all nonattainment areas for the 2008 ozone NAAQS, which were promulgated in March 2008. It also established December 31 of each relevant calendar year as the attainment date for all nonattainment area classification categories and provided for the revocation of the 1997 ozone NAAQS for transportation conformity purposes to occur one year after the effective date of designations, or July 20, 2013.

Effective on July 20, 2013

The 1997 Ozone NAAQS will no longer apply for transportation conformity purposes.

Effective on March 18, 2013

The primary, annual PM_{2.5} standards will be strengthened from 15 µg/m³ to 12 µg/m³.

On January 15, 2013, the EPA published a final rule via the Federal Register (78 FR 3086) strengthening the primary, annual PM_{2.5} NAAQS from 15 micrograms per cubic meter (µg/m³) to 12 µg/m³. The EPA retained the 24-hour PM_{2.5} standard and the current 24-hour PM₁₀ standard. EPA announced its intent to designate areas for the revised PM_{2.5} NAAQS on a 2-year schedule from the signature of the final rule (December 14, 2012). Pending

further direction, it is anticipated that state designation recommendations will be due to the EPA no later than December 13, 2013 and should be based on air quality data from the years 2010-2012. A final rule promulgating the initial area designations is anticipated by December 12, 2014.

1.4 Arizona's Nonattainment, Maintenance and Attainment Areas

Based largely on air quality monitoring data, the EPA must designate areas as either meeting (attainment) or not meeting (nonattainment) the NAAQS for each criteria pollutant. As illustrated in **Figure 1-2**, there are currently over 20 nonattainment or maintenance areas throughout the state of Arizona. While transportation conformity is not required in sulfur dioxide (SO₂) nonattainment areas, they have been included in **Figure 1-2** and Table 1-2 below for illustrative purposes.

Table 1-2: Arizona Sulfur Dioxide Nonattainment and Maintenance Areas

Area	Designation	County	MPO / COG
Hayden (Pinal County), AZ	Moderate	Pinal (P)	CAG
Ajo (Pima County), AZ	Maintenance	Pima (P)	PAG
Douglas (Cochise County), AZ	Maintenance	Cochise (P)	SEAGO
Miami (Gila County), AZ	Maintenance	Gila (P)	CAG
Morenci (Greenlee County), AZ	Maintenance	Greenlee (P)	SEAGO
San Manuel (Pinal County), AZ	Maintenance	Pinal (P)	CAAG

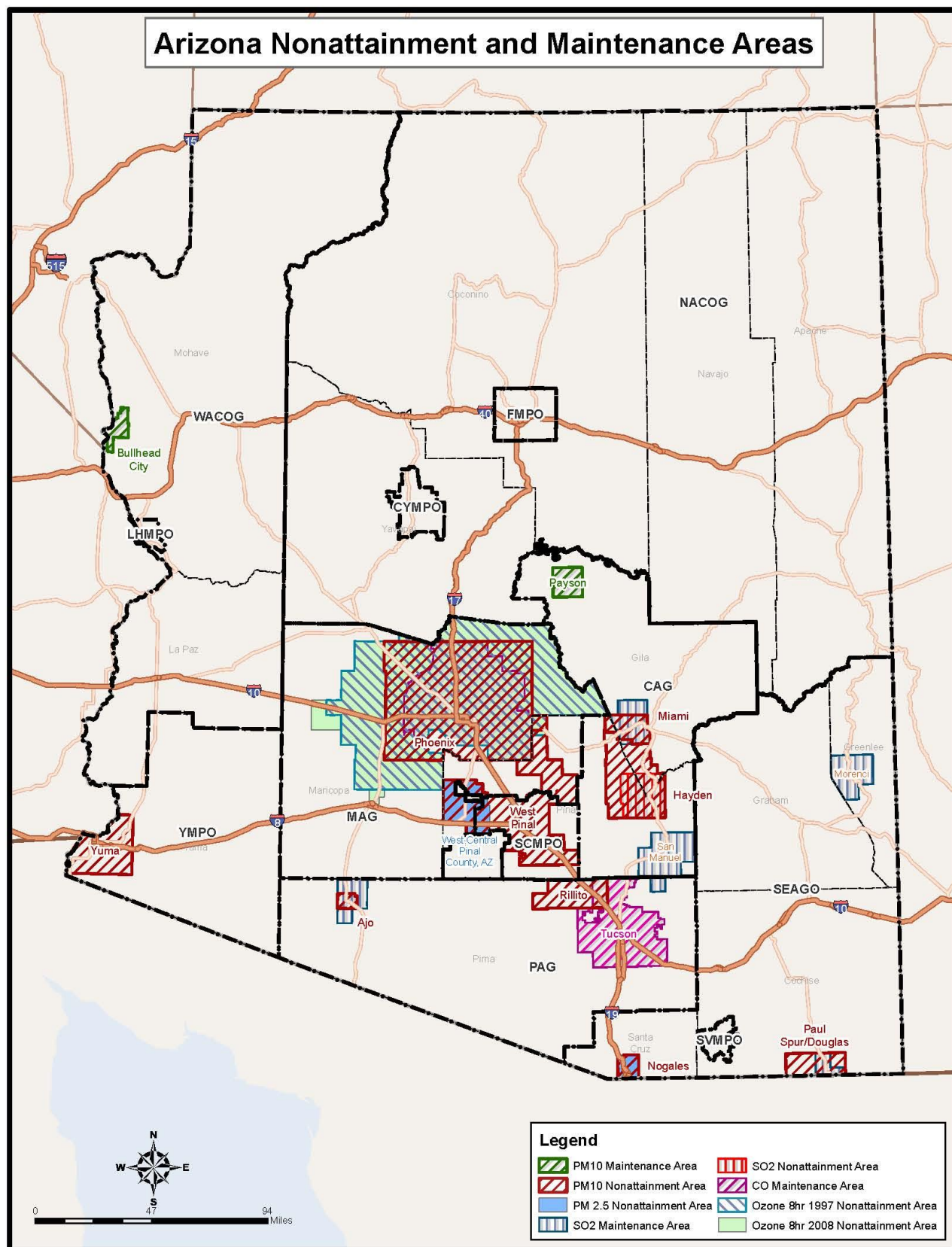
(P) = Partial County

1.5 Arizona's State Implementation Plans (SIPs)

Once an area has been designated as nonattainment for a given NAAQS, the state must create a plan, known as a State Implementation Plan (SIP), to bring the region back into attainment status. Included in the SIPs are emission budgets for various pollutant sectors, including on-road mobile source transportation, that outline the maximum emissions allowed as well as any transportation control measures (TCMs) used to reduce transportation emissions. The state air agency, The Arizona Department of Environmental Quality (ADEQ) develops the state's SIPs and submits them to the EPA for approval. In addition to ADEQ, two MPOs in Arizona, MAG and PAG, have been delegated the responsibility of completing SIP requirements for ozone, carbon monoxide, and particulate pollution (A.R.S. § 49-406) for their respective nonattainment and/or maintenance areas.

Table A1-1 in Appendix A outlines the nonattainment and maintenance areas by pollutant and includes the area name, designation, county and applicable MPO and/or COG area. The table includes the current status of SIPs (including 5 percent plans, maintenance or limited maintenance plans [LMPs]) and motor vehicle emission budgets (MVEBs) where applicable in addition to relevant notes and links to pertinent documentation.

Figure 1-2: Arizona Nonattainment and Maintenance Areas



1.6 Transportation Conformity

Transportation conformity is required by the CAA (Section 176 (c)) to ensure that federal funding and approval are given to highway and transit projects that are consistent with the area's air quality goals. Demonstrating conformity means verifying that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS.

Transportation conformity regulations (40 CFR Parts 51 and 93) require conformity determinations for areas that have been designated as nonattainment or maintenance for the following NAAQS: carbon monoxide (CO), ozone, particulate matter (PM_{2.5} and PM₁₀), and nitrogen dioxide (NO₂). Conformity applies to transportation improvement programs (TIPs), long-range transportation plans (plans), and transportation projects that require federal (FHWA or FTA) funding or approval.

Final conformity determinations are made (approved) by FHWA / FTA with EPA consultation. MPO policy boards (MAG, PAG, YMPO) make initial conformity determinations for plans, TIPs and projects. The remaining areas rely on ADOT and ADEQ to make the initial determinations. A formal interagency consultation process is required for developing SIPs, plans, TIPs and making conformity determinations and will be discussed in more detail in Working Paper 2.

If an area fails to successfully demonstrate transportation conformity according to schedule, a one-year grace period begins. The grace period provides 12 months for an area to successfully demonstrate conformity before a conformity lapse begins.¹ During a lapse no new non-exempt projects can be amended to the plan or TIP and the use of federal funds is restricted; only the following project types may proceed:

- Projects that are exempt from conformity (§93.126 and 127).
- TCMs in approved SIPs.
- Projects or project phases that are already authorized.

1.6.1 Regional Conformity

Regional conformity, or the conformity of a plan or TIP, demonstrates that the total emissions from on-road travel on an area's transportation system are consistent with goals for air quality found in the SIP, i.e., they are less than or equal to the motor vehicle emission budgets (§93.118). If an area does not have adequate or approved MVEBs another test, known as the interim emissions test (§93.119), must be performed. The interim emissions tests include either demonstrating that the emissions predicted in the "action" scenario are not greater than the emissions predicted in the "baseline" scenario or by demonstrating that the emissions predicted in the "action" scenario are not greater than the emissions in the baseline year for a given NAAQS.

Essential Regional Conformity Components

- Interagency Consultation
- Latest Planning Assumptions and Emissions Model
- Regional Emissions Analysis
- Timely Implementation of Transportation Control Measures
- Fiscal Constraint
- Public Involvement

¹ The one-year conformity lapse grace period does not apply to new nonattainment areas that must make a determination within 12 months of a final designation.

1.6.2 Frequency

Conformity determinations must be made at least every four years in areas with metropolitan plans or TIPs, but may occur more regularly if the MPOs update their transportation planning documents more frequently or amend them with non-exempt projects. In contrast, conformity determinations in isolated rural nonattainment and maintenance areas are required only when a new non-exempt FHWA/STA project needs funding or approval. A rural area is an area with a population of less than 50,000 and due to its small size, is exempted from FHWA/FTA metropolitan planning requirements related to the development of transportation plans and TIPs. Isolated rural nonattainment and maintenance areas are areas that do not contain or are not part of any metropolitan planning area as designated under the transportation planning regulations. Isolated rural areas do not have federally required plans and do not have projects that are part of the emissions analysis of any MPO's plan or TIP. Projects in such areas must be included in statewide transportation improvement programs (STIPs) prior to federal action to fund or approve such projects. In addition, the following events will trigger the need for a conformity determination:

Conformity Trigger	Grace Period (Within X Months) ²	Reference
MVEBs approved or found adequate	24 months	§ 93.104 (e)(1-3)
Newly designated nonattainment areas	12 months	§ 93.102(d)
New EPA emissions model	No less than 3 months, no more than 24 months	§ 93.111 (b)(1)

1.6.3 Applicability

All of the areas cataloged in the Appendix A tables must continue to demonstrate regional transportation conformity with the exception of those areas that have an approved Limited Maintenance Plan. Pursuant to the original CO and Ozone guidance, issued in 1995 and 1994, respectively, and the 2001 EPA *Limited Maintenance Plan Option for Moderate PM10 Nonattainment Areas* guidance memo,

Limited Maintenance Plans

Transportation Conformity must be affirmed, but a regional emissions analysis is not required.

“Emissions budgets in LMP areas may be treated as essentially not constraining for the length of the maintenance period because it is unreasonable to expect that an area satisfying the LMP criteria will experience so much growth during that period of time such that a violation of the PM10 NAAQS would result. While this policy does not exempt an area from the need to affirm conformity, it does allow the area to demonstrate conformity without undertaking certain requirements of these rules. For transportation conformity purposes, EPA would be concluding that emissions in these areas need not be capped for the maintenance period, and, therefore, a regional emissions analysis would not be required.”

² Arizona Administrative Code (AAC) was last updated in 1995 and differs slightly from federal regulations. http://www.azsos.gov/public_services/Title_18/18-02.htm#Article_14
December, 2013

1.6.4 Project-Level Conformity

In addition to regional conformity determinations, project-level conformity determinations are required in CO, PM_{2.5} and PM₁₀ nonattainment and maintenance areas (§93.109 (d)). To demonstrate project-level conformity:

- A project must come from a conforming STIP or MPO plan / TIP.
- The project's design concept and scope must not have changed significantly from that in the STIP or MPO planning documents.
- The analysis must have used the latest planning assumptions and the latest emissions model.
- In PM_{2.5}/PM₁₀ areas, there must be a demonstration of compliance with any control measures in the SIP.

Additional analysis may be necessary to determine if a project has localized air quality impacts. This localized air analysis is referred to as a "hot-spot" analysis. A hot-spot analysis is defined as an estimation of likely future localized CO, PM₁₀, and/or PM_{2.5} pollutant concentrations and a comparison of those concentrations to the NAAQS. A hot-spot analysis assesses impacts on a scale smaller than the entire nonattainment or maintenance area, including, for example, congested roadway intersections and highways or transit terminals, and uses an air quality dispersion model to determine the effects of emissions on air quality (§93.101).

All of the areas, with the exception of ozone areas, cataloged in the Appendix A tables must continue to demonstrate project-level transportation conformity. Project-level conformity, including micro-scale air quality analysis and modeling, is currently performed by ADOT.

1.7 Resources

Table 1-3 outlines applicable federal, state, local and other resources related to transportation air quality. It represents a clearinghouse of information regarding laws, regulations and guidance documents that assist in successfully adhering to transportation air quality requirements.

Table 1-3: Resources

Federal Resources	
The Clean Air Act	http://www.epa.gov/air/caa/
EPA State and Local Transportation Resources*	http://www.epa.gov/otaq/stateresources/transconf/conf-regs.htm
National Ambient Air Quality Standards	http://www.epa.gov/air/criteria.html
Criteria Air Pollutants	http://www.epa.gov/air/urbanair/
EPA Green Book	http://www.epa.gov/oaqps001/greenbk/index.html
FHWA Air Quality	http://www.fhwa.dot.gov/environment/air_quality/
MOVES Model & Guidance	http://www.epa.gov/otaq/models/moves/index.htm
Project-Level Conformity and Hot-Spot Analysis	http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#pm-hotspot
MAP-21	http://www.fhwa.dot.gov/map21/
State Resources	
ADOT Air Quality	http://www.azdot.gov/mpd/air_quality/Documents.asp
ADEQ (links to SIPs)	http://www.azdeq.gov/enviro/air/plan/notmeet.html
EPA Air Actions, Arizona	http://www.epa.gov/region9/air/actions/az.html
FHWA Arizona Division	http://www.fhwa.dot.gov/azdiv/responsibilities.htm
Arizona Administrative Code	http://www.azsos.gov/public_services/table_of_contents.htm
MPO & COG Resources	
CAG	http://www.cagaz.org/
PAG	http://www.pagnet.org/
MAG	http://www.azmag.gov/
SEAGO	http://www.seago.org/
WACOG	http://www.wacog.com/
YMPO	http://ympo.org/
LHMPO	http://www.lhcaz.gov/lhmopo.html
SCMPO	http://www.scmopo.org
Other Jurisdiction Resources: Three Arizona counties have their own air pollution control programs and operate pursuant to agreements with ADEQ.	
Maricopa County	http://www.maricopa.gov/aq/
Pima County	http://www.deq.pima.gov/air/
Pinal County	http://pinalcountyz.gov/Departments/AirQuality/Pages/AirQualityNews.aspx
Other Resources	
AASHTO	http://www.transportation.org/Pages/default.aspx
AMPO	http://www.ampo.org/
TRB	http://www.trb.org/Main/Home.aspx

* This page provides access to all transportation conformity regulations, including final rules and rulemakings currently in progress. It also provides access to guidance documents that have been issued to facilitate implementation of the conformity program.